

Poster:

Ground truth for soil and snow moisture sensing

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The moisture content in soil or snow is an important factor for the intensity of backscattered radar signals. Therefore we need accurate ground truth data to develop models which link the backscatter coefficients with moisture content. To compare ERS-1/2 signals with the moisture content it is necessary to determine the liquid water content on large areas.

For this purpose a new TDR-method (time-domain-reflectometry) was developed to measure the spatial moisture content in soil or snow. One flat band cable with a length of 40m was buried in soil and the second cable was enclosed by falling snow. The surrounding moist material modified the electro-magnetic field which was measured in different ways, i.e. travel time, impedance and attenuation. Two examples show the use of the new method on a test field near Karlsruhe / Germany and on the mountain 'Schauinsland' in black forest / Germany. In frozen snow it was additionally possible to determine the snow density with the new TDR-technique.